

CLAIMS:

1. A narrow band ultraviolet laser device comprising light shielding elements (37A to 37C) having
- 5 light transmitting sections (47A to 47C) each constituted by an opening for transmitting laser light (11), and light shielding sections (49A to 49C) that surround said light transmitting sections (47A to 47C), remove undesired laser light (11A) from an optical path and shape the laser light (11)
- 10 into a predetermined form,
- wherein heating means (45) for heating said light transmitting sections (47A to 47C) are included in the vicinity of said light shielding elements (37A to 37C).
- 15 2. The narrow band ultraviolet laser device according to Claim 1,
- wherein said heating means (45) also performs heating in a state in which the laser light (11) is not oscillated.
- 20 3. The narrow band ultraviolet laser device according to Claim 1 or Claim 2, further comprising:
- a laser controller (4) for controlling laser oscillation;
- and
- temperature measuring devices (48) for measuring
- 25 temperature of gases inside said light transmitting sections

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(47A to 47C),

wherein said temperature measuring devices (48) give information regarding said temperature of the gases to said laser controller (4), and

5 wherein said laser controller (4) starts laser oscillation based on said information.

4. A narrow band ultraviolet laser device comprising light shielding elements (37A to 37C) having
10 light transmitting sections (47A to 47C) for transmitting laser light (11), and light shielding sections (49A to 49C) that surround said light transmitting sections (47A to 47C), remove undesired laser light (11A) from an optical path and shape the laser light (11) into a predetermined form,

15 wherein spraying means (40) for spraying an inert gas is included in the vicinity of said light shielding elements (37A to 37C).

5. A narrow band ultraviolet laser device comprising light
20 shielding elements (37A to 37C) having light transmitting sections (47A to 47C) for transmitting laser light (11), and light shielding sections (49A to 49C) that surround said light transmitting sections (47A to 47C), remove undesired laser
25 light (11A) from an optical path and shape the laser light (11)

into a predetermined form,

wherein said light shielding sections (49A to 49C) are formed of a material including at least any one of aluminum, aluminum alloy and copper.

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6. A narrow band ultraviolet laser device comprising light shielding elements (37A to 37C)

having light transmitting sections (47A to 47C) for transmitting laser light (11), and

10 light shielding sections (49A to 49C) that surround said light transmitting sections (47A to 47C), remove undesired laser light (11A) from an optical path and shape the laser light (11) into a predetermined form,

wherein said light shielding sections (49A to 49C) are
15 formed of a material which transmits the laser light (11), and have a function of removing the undesired laser light (11A) from the optical path.

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20 7. The narrow band ultraviolet laser device according to Claim 6,

wherein said removing function is performed at total reflection coating formed on surfaces of said light shielding sections (49A to 49C).

25 8. A narrow band ultraviolet laser device comprising

light shielding elements (51A, 51B) for removing undesired laser light (11B) from an optical path and shaping laser light (11) into a predetermined form, and light transmitting sections (47A, 47B) formed by said light shielding elements (51A, 51B), for transmitting the laser light (11),

wherein said light shielding elements (51A, 51B) are formed of a material which transmits the laser light (11), and have a function of removing the undesired laser light (11B) from the optical path.

9. The narrow band ultraviolet laser device according to Claim 8,

wherein said removing function is a function of refracting the laser light (11) at said light shielding elements (51A, 51B) and guiding it outside from the optical path as the undesired laser light (11B).

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10. A narrow band ultraviolet laser device comprising light shielding elements (37A to 37C) having light transmitting sections (47A to 47C) for transmitting laser light (11), and light shielding sections (49A to 49C) that surround said light transmitting sections (47A to 47C), remove undesired laser light (11A) from an optical path and shape the laser light (11) into a predetermined form,

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